

Appl. No. 09/783,604
Amendment After Final dated November 15, 2004
Reply to Office Action of July 14, 2004

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Currently Amended): A method for analyzing defects in electronic circuit patterns, comprising:

- a step for inspecting a first object to detect defects during a production process and obtaining position information of said defects;
- a step for detecting images of said defects using said position information of said defects obtained;
- a step for performing an electronic test on said first object after said production process is completed to detect faults in said first object and obtain position information of said faults;
- a step for comparing said position information of said defects with said position information of said faults and extracting defects having common position information between said defects and said faults;
- a step for classifying images of extracted defects into critical defect images and non-critical defect images based on a pre-stored classification rule which defines critical and non-critical defects by referring to images of defects, position information of said defects and results of performing the electronic test to each other;
- a step for displaying images of classified defects on a screen by discriminating between said critical defect images and said non-critical defect images;

Appl. No. 09/783,604
Amendment After Final dated November 15, 2004
Reply to Office Action of July 14, 2004

a step for modifying said pre-stored classification rule by correcting classification of classified defect images displayed on the screen;

a step for inspecting a second object during the production process to detect defects and obtain information of said defects including position information and image of said defects;

a step for classifying images of said defects detected on said second object into critical defects and non-critical defects by using a modified classification rule; and

a step for outputting information on said classified defect images of said second object.

Claims 2-4 (Canceled):

Claim 5 (Currently Amended): A method for analyzing defects in electronic circuit patterns comprising:

a step for inspecting a first object to detect defects during a production process and obtaining information relating to said defects on the first object including position information and detailed information, and storing information relating to said position information and detailed information of said defects;

a step for performing an electronic test on said first object after said production process is completed to detect electronic faults in said first object and obtain position information of said electronic faults and storing said position information of said electronic faults;

Appl. No. 09/783,604
Amendment After Final dated November 15, 2004
Reply to Office Action of July 14, 2004

a step for comparing stored position information of said defects with stored position information of said electronic faults and classifying said stored position information of said defects into critical defects and non-critical defects;

a step for classifying stored detailed information of said defects into critical defects and non-critical defects under a pre-stored classification rule referring to classified position information of said defects which defines critical and non-critical defects by referring to images of said defects, classified position information of said defects, and results of performing the electronic test to each other;

a step for modifying said pre-stored classification rule by correcting classified detailed information;

a step for inspecting a second object during the production process to detect defects and obtain position information and detailed information of said defects on the second object;

a step for classifying said detailed information of said defects on the second object into critical defects and non-critical defects using a modified classification rule; and

a step for outputting information on classified defects.

Claim 6 (Canceled):

Claim 7 (Previously Presented): A method as claimed in claim 5, wherein, in the step for classifying said detailed information of said defects on the second object, said non-critical defects are further classified into at least two categories.

Appl. No. 09/783,604
Amendment After Final dated November 15, 2004
Reply to Office Action of July 14, 2004

Claim 8 (Previously Presented): A method as claimed in claim 5, wherein in the step for outputting, defect generation rate for each defect class classified in the step for classifying said obtained detailed information of said second object is outputted.

Claims 9-11 (Canceled):

Claim 12 (Previously Presented): A method as claimed in claim 5, wherein said detailed information is a defect image.

Claim 13 (Currently Amended): A method for analyzing defects in electronic circuit patterns comprising: a step for inspecting a first object during a production process to detect defects;

a step for obtaining information of said defects including position information of said defects;

a step for performing an electronic test on said first object after said production process has been completed to detect electronic testing faults in said first object;

a step for obtaining position information on said electronic testing faults;

a step for comparing obtained position information of said defects with obtained position information of said electronic testing faults and extracting defects having common position information between said defects and said electronic testing faults;

Appl. No. 09/783,604
Amendment After Final dated November 15, 2004
Reply to Office Action of July 14, 2004

a step for classifying extracted defects into critical defects and non-critical defects based on a pre-stored classification rule which defines critical and non-critical defects by referring to information of defects including position information of said defects, and results of performing the electronic test to each other;

a step for displaying classified defects on a screen by discriminating between said critical defects and said non-critical defects;

a step for modifying said pre-stored classification rule by correcting a classified result of said defects displayed on the screen;

a step for inspecting a second object during the production process to detect defects and obtain information of said defects including position information of said defects;

a step for classifying said defects detected on said second object into critical defects and non-critical defects by using said modified classification rule; and

a step for outputting information on classified defects on said second object.

Claims 14-15 (Canceled):

Claim 16 (Previously Presented): A system for analyzing defects in electronic circuit patterns comprising:

a first memory which stores position information and detailed information of individual defects detected on a first object during a production process;

a second memory which stores position information of electronic testing faults detected on said first object with an electronic test after said production process has been completed;

Appl. No. 09/783,604
Amendment After Final dated November 15, 2004
Reply to Office Action of July 14, 2004

a comparator which compares said position information of said defects stored in said first memory with said position information of electrical testing faults stored in said second memory;

first classifying means for classifying said position information of said defects either critical defects or non-critical defects using a first classification rule;

second classifying means for classifying said detailed information of said defects either critical defects or non-critical defects referring to classified position information of defects using a second classification rule;

modifying means for modifying said second classification rule by correcting classified detailed information classified by said second classification means;

a third memory for storing both position information and detailed information obtained from a second object during the production process;

third classifying means for classifying said detailed information of defects detected on said second object either critical defects or non-critical defects using a modified second classification rule; and

outputting means which outputs information of defects classified by said third classifying means.

Claims 17-18 (Canceled):

Claim 19 (Original):

A system as claimed in claim 16, wherein said second classifying means subdivides at least one of said detailed information of critical defects and that of non-critical defects referring to those similarity before teaching said third classifying means.

Appl. No. 09/783,604
Amendment After Final dated November 15, 2004
Reply to Office Action of July 14, 2004

Claims 20-22 (Canceled):

Claim 23 (Previously Presented): A system for analyzing defects in electronic circuit patterns comprising:

a first memory which stores position information and detailed information of individual defects detected on a first object during a production process;

a second memory which stores position information of electrical testing faults detected on said first object by an electronic test after said production process has been completed;

a comparator which compares said position information of said defects stored in said first memory with said position information of said electrical testing faults stored in said second memory;

first classifying means for classifying said position information of said defects either critical defects or non-critical defects by using a first classification rule;

second classifying means for classifying said detailed information of said defects either critical defects or non-critical defects referring to classified position information of said defects by using a second classification rule;

display means for displaying said defects classified by said second classifying means on a screen;

modifying means for modifying said second classification rule by correcting classified detailed information classified by said second classification means and displayed on the screen; and

Appl. No. 09/783,604
Amendment After Final dated November 15, 2004
Reply to Office Action of July 14, 2004

outputting means which outputs information of defects classified by said second classifying means using a modified second classification rule.

Claim 24 (Previously Presented): A system as claimed in claim 23, wherein said detailed information is a defect image.

Claims 25-28 (Canceled):

Claim 29 (Previously Presented): A system as claimed in claim 23, wherein said outputting means outputs a defect image as said detailed information of defects to said display means, and said display means displays the defect image classified by said second classifying means using said modified second classification rule.

Claim 30 (Previously Presented): A method as claimed in claim 5, further comprising:

a step for counting number of the defects classified as critical defects at the step for classifying said detailed information of defects on said second object; and
a step for displaying information of a counted number of said defects classified as critical defects.

Claim 31 (Previously Presented): A method as claimed in claim 13, wherein, in the step for classifying said detailed information of defects on said

Appl. No. 09/783,604
Amendment After Final dated November 15, 2004
Reply to Office Action of July 14, 2004

second object, said non-critical defects are further classified into at least two categories.

Claim 32 (Previously Presented): A method as claimed in claim 13, wherein, in the step for outputting, a defect generation rate for each defect class classified in the step for classifying said detailed information of defects on said second object is outputted.